Volatile Organic Compounds - TN Rule 1200-3-18-.36
PETROLEUM SOLVENT DRY CLEANERS

(1) Applicability of this rule is as follows:

(a) This rule applies to petroleum solvent dry cleaning facilities in Davidson, Rutherford, Shelby, Sumner, Williamson, and Wilson Counties.

(b) Of the facilities referred to in Subparagraph (a) of the paragraph, any petroleum solvent dry cleaning facility that consumes less than 123,000 liters (L) (32,500 gallons [gal]) of petroleum solvent per year is subject only to the requirements of Subparagraph (5)(a) of this rule.

(c) This rule does not apply to facilities that use only petroleum-based solvents that contain chlorine.

(2) For the purpose of this rule, the following definitions apply:

(a) "Filter cartridge" means a replaceable filter unit containing filtration paper and carbon or carbon only.

(b) "Perceptible leaks" means any petroleum solvent vapor or liquid leaks that are conspicuous from visual observation or that bubble after application of a soap solution, such as pools or droplets of liquid, open containers of solvent, or solvent-laden waste standing open to the atmosphere.

(c) "Petroleum solvent cartridge filtration system" means a process in which soil-laden solvent is pumped under pressure from a washer through a sealed vessel containing filter cartridges that remove entrained solids and impurities from the solvent.

(d) "Petroleum solvent dry cleaning facility" means a facility engaged in the cleaning of fabrics, clothing, and other articles in a petroleum solvent by means of one or more washes in the solvent, extraction of excess solvent by spinning, and drying by tumbling in an airstream. Equipment at the facility includes, but is not limited to, any petroleum solvent washer, dryer, solvent filter system, settling tank, vacuum still, and any other container or conveyor of petroleum solvent.

(e) "Settling tank" means a container, and any associated piping and ductwork, that gravimetrically separates oils, grease, and dirt from petroleum solvent.

(f) "Solvent filter" means a discrete solvent filter unit containing a porous medium that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in the installation of this device.

(g) "Solvent recovery dryer" means a class of dry cleaning dryers that employs a condenser to condense and recover solvent vapors evaporated in a closed-loop stream of heated air, together with the piping and ductwork used in the installation of this device.

(h) "Standard dryer" means a device that dries dry-cleaned articles by tumbling in a heated airstream.

(i) "Still" means a device used to volatilize, separate, and recover petroleum solvent from contaminated solvent, together with the piping and ductwork used in the installation of this device.

(j) "Washer" means a machine which agitates fabric articles in a petroleum solvent bath and spins the articles to remove the solvent, together with the piping and ductwork used in the installation of this device.

(3) Standards as follow apply:

(a) The owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall ensure that:

1. There are no perceptible leaks from any portion of the equipment; and

2. All washer lint traps, button traps, access doors, and other parts of the equipment where solvent may be exposed to the atmosphere are kept closed at all times except when opening is required for proper operation or maintenance.

(b) The owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall repair any perceptible leaks in any portion of the dry cleaning equipment within 3 working days after the leak is detected. If necessary repair parts are not on hand, the owner or operator shall order these parts within 3 working days and repair the leaks no later than 3 working days after the parts arrive.

(c) The owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall:

1. Limit the volatile organic compound (VOC) emissions from each standard dryer to 1.6 kilograms (kg) (3.5 pounds [lb]) VOC per 45 kg (100 lb) dry weight of articles dry cleaned, or

2. Install, maintain, and operate a solvent-recovery dryer such that the dryer remains closed and the recovery phase continues until a final recovered solvent flow rate of no greater than 50 milliliters per minute (ml/min) (0.013 gallons per minute [gal/min]) is attained.

(d) The owner or operator of a petroleum solvent filtration system subject to this rule shall:

1. Reduce the VOC content in filtration waste to 1 kg (2.2 lb) VOC per 100 kg (220 lb) dry weight of articles dry cleaned, or

2. As an alternative:

(i) Install, maintain, and operate a cartridge filtration system according to the manufacturer's instructions, and

(ii) Drain all filter cartridges in their sealed housings for 8 hours or more before their removal.

(4) Test methods and procedures as follow apply:

(a) To be in compliance with Part (3)(c)1 of this rule, each owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall:

1. Calculate the weight of VOC's vented from the dryer emission control device calculated by using Reference Methods 1, 2, and 25A with the following specifications:

(i) Field calibration of the flame ionization analyzer with propane standards;

(ii) Laboratory determination of the ratio of the flame ionization analyzer response to a given parts per million (ppm) by volume concentration

of propane to the response to the same ppm concentration of the VOC's to be measured; and

(iii) Determination of the weight of VOC's vented to the atmosphere by:

(I) Multiplying the ratio determined in Subpart (ii) of this part by the measured concentration of VOC gas (as propane) as indicated by the flame ionization analyzer response output record;

(II) Converting the ppm by volume value calculated in Item (I) of this subpart into a mass concentration value for the VOC's present; and

(III) Multiplying the mass concentration value calculated in Item (II) of this subpart by the exhaust flow rate determined by using Reference Methods 1 and 2.

2. Calculate the dry weight of articles dry cleaned; and

3. Repeat Parts 1 and 2 of this subparagraph for normal operating conditions that encompass at least 30 dryer loads, which total not less than 1,800 kg (4,000 lb) dry weight and represent a normal range of variations in fabrics, solvents, load weights, temperatures, flow rates, and process deviations.

(b) To determine initial compliance with Part (3)(c)2 of this rule, the owner or operator of a petroleum solvent dry cleaning facility shall:

1. Verify that the flow rate of recovered solvent from the solvent-recovery dryer at the termination of the recovery phase is no greater than 50 ml/min (0.013 gal/min) by using the following procedure:

(i) Determine the appropriate location for measuring the flow rate of recovered solvent; the suggested point is at the outlet of the solvent-water separator;

(ii) Near the end of the recovery cycle, divert the flow of recovered solvent to a Vmax = 8.706 + 0.7084 (HT) where:
Vmax = Maximum permitted velocity, m/s;
8.706 = Constant;
0.7084 = Constant; and
HT = The net heating value as determined in Part 7 of this subparagraph.

2. The net heating value of the process vent stream being combusted in a flare shall be calculated using the following equation:
nHT = K Σ CiHii = 1 where: graduated cylinder;

(iii) Continue the cycle until a flow rate of solvent no greater than 50 ml/min (0.013 gal/min) is reached; and

(iv) Record the type of articles dry cleaned and the length of the cycle.

3. To determine initial compliance with Part (3)(c)2 of this rule, conduct the procedure in Part 1 of this subparagraph for at least 50 percent of the dryer loads over a period of no less than 2 consecutive weeks.

(c) To be in compliance with Subparagraph (3)(d) of this rule, the owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall:

1. Calculate the weight of volatile organic compounds contained in each of at least five 1-kg (2.2-lb) samples of filtration waste material taken at

intervals of at least 1 week, by employing ASTM D322-80 (Standard Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation);

2. Calculate the total dry weight of articles dry cleaned during the intervals between removal of filtration waste samples, as well as the total mass of filtration waste produced in the same period; and

3. Calculate the weight of VOC's contained in filtration waste material per 100 kg (220 lb) dry weight of articles dry cleaned.

(d) Compliance with Paragraph (3) of this rule requires that each owner or operator of a petroleum solvent dry cleaning facility subject to this rule make weekly inspections of washers, dryers, solvent filters, settling tanks, vacuum stills, and all containers and conveyors of petroleum solvent to identify perceptible VOC vapor or liquid leaks.

(5) Recordkeeping requirements as follow apply:

(a) The owner or operator of a petroleum solvent dry cleaning facility claiming exemption from this regulation by the provisions of Subparagraph (1)(b) shall maintain records of annual solvent consumption for at least 3 years to document whether the applicability threshold in Subparagraph (1)(b) of this rule has been exceeded.

(b) The owner or operator of a petroleum solvent dry cleaning facility subject to this rule shall maintain the following records for at least 3 years:

1. Records of the weight of VOC's vented from the dryer emission control device calculated according to Part (4)(a)1 of this rule;

2. Records of the dry weight of articles dry cleaned for use in the calculations required in Subparagraphs (4)(a), (4)(b), and (4)(c) of this rule;

3. Records of the weight of VOC's contained in the filtration waste samples required by Part (4)(c)1 of this rule; and

4. Records of the weight of VOC's in filtration waste material per 100 kg (220 lb) dry weight of articles dry cleaned.

(6) The owner or operator of any facility containing sources subject to this rule shall:

(a) Comply with the initial compliance certification requirements of Paragraph .04(1) of this chapter; and

(b) Comply with the requirements of Paragraph .04(2) of this chapter for excess emissions related to the control devices required to comply with Subparagraph (3)(b) and Parts (3)(c)2 and (3)(d)2 of this rule.

Authority: T.C.A. §§68-201-105 and 4-5-202. Administrative History: Original rule filed March 8, 1993; effective April 22, 1993. Amendment filed July 27, 1995; effective October 9, 1995. Amendment filed May 16, 1997; effective July 30, 1997.